THE ACCOUNTING SYSTEM PRESCRIBED FOR RAILROADS BY THE INTERSTATE COMMERCE COMMISSION

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The origin of the system of accounts which is now prescribed for all railroad companies reporting to the Interstate Commerce Commission was a system of accounts which Thomas D. Messler introduced shortly after 1862 on the Pittsburg, Fort Wayne & Chicago—the northwest system of the Pennsylvania Lines West. The theory on which this system was based is that the accounts of the railroad should be a "pen picture" of the results of operation for the fiscal period and of the financial condition of the company's affairs. The system which is now prescribed by the Interstate Commerce Commission rests on the theory that the accounts should show the cost of the assets of the corporation and the cost of performing the service of transportation and incidental services connected therewith. The commission and its former statistician, Professor Henry C. Adams, originated nothing of importance in the present system, their contribution to it being in the nature of elaboration.

Previous to the introduction of the Messler system on the Pennsylvania Lines West, each department or division of a railroad company had its own set of bookkeepers who evidenced the transactions of that department or division. These records were combined and audited by the auditor or treasurer who drew up the balance sheet, based on the summarized and audited records. The Messler system combined the bookkeeping and auditing functions in a single department—the accounting department. The Messler system accomplished four important changes:

(1) The accounting officer was made responsible for the collection of all accounts due the company and for the making of settlements with other companies;

(2) There was established the forwarded basis for the settlement of interline freight accounts and the balance of station accounts between the forwarding and receiving stations;

(3) A classification of operating expenses by departments;

(4) All accounts payable and journal vouchers were required to be signed by three parties, the clerk originating the voucher, his immediate superior and the head of the department interested, before these accounts were journalized.

The Interstate Commerce Commission, when it was created in 1887, was given power to prescribe a system of accounts for railroad companies. The system formulated by the commission and its statistician, Professor Adams, was based on the one in use on the Pennsylvania Lines west of Pittsburg.

L. F. Loree, now president of the Delaware & Hudson Company and chairman of the Board of Directors of the Kansas City Southern Railway Company, when he became general manager of the Pennsylvania Lines West in 1896 made a revision of the form of accounts in use on the Pennsylvania, with the object of separating under the old heading of conducting transportation the cost of soliciting traffic and the cost of handling it. He also made a uniform nomenclature as to employees, so as to bring about uniformity in the accounts to which the wages of employees were charged on different divisions of the road. He introduced a classified index of material to eliminate the divergence of practice in charging out material at the different local offices. When Mr. Loree went to the Baltimore & Ohio as president, this system of accounts was introduced on that road and further modified and when he went to the Rock Island lines he installed the system there, also, and the accounts were still further modified and amplified.

In 1906 the amendment to the law creating the Interstate Commerce Commission extended the powers of the commission in regard to prescribing a form of accounts for the railroad companies reporting to the commission, and Professor Henry C. Adams, working in conjunction with Frank Nay, chief accounting officer of the Rock Island and at that time president of the Association of American Railway Accounting Officers, took as a basis for discussion the system of accounts in effect on the Rock Island lines. With some modifications, this was the system adopted by the commission and prescribed in 1907 to be used by all railroad companies beginning July 1, 1907. In June, 1907, James McCrea, then president of the Pennsylvania Railroad, protested strongly against the adoption of the new system and its enforcement on all railroads, without further consultation, asking especially that the executive officers of

the larger roads be given a hearing before the commission. This request of Mr. McCrea's was refused on the ground that careful consideration had already been given to the matter and that the commission and statistician had been working in conjunction with the Association of American Railway Accounting Officers, and the new system therefore represented the consensus of opinion of the best available experts. This was not strictly true. In certain very important instances the accounting officers of the railroads had objected absolutely to the adoption of certain theories of the commission. This was the case in regard to the commission's rules which made it necessary to charge the original cost of a line abandoned, to obtain a better location, to expenses.

On July 1, 1914, a new system of accounts was prescribed by the Interstate Commerce Commission modifying to a very considerable extent the details of the previously adopted system. Mr. McCrea's argument, therefore, that further discussion would lead to further modifications and his belief that the comparisons should not be disturbed more than was necessary have since proved to be well founded.

Railroad accounting, as distinguished from the auditing and bookkeeping functions of the accounting department, must, if it is to best serve its purpose, make a clear and easily recognizable distinction between the expense of conducting business and additional investment in the business. The commission's trend toward detailed cost accounting has been the result of a desire to meet the defense which railroad companies have used in rate cases of "confiscation without due process of law."

After the Supreme Court decision in the case of Smythe *v.* Ames, the commissioners recognized the fact that they could not prescribe rates which were below the cost of performing the service necessary to earn the rate. They therefore desired a system of accounts which would distinguish between the cost of performing different classes of service. The developments which have taken place in the system of accounts since the adoption by the commission of the Pennsylvania Lines West system have been toward evolving a cost accounting system. It has not as yet been successful despite the fact that a very elaborate and comprehensive set of detailed accounts have been set up under each one of the general heads of operating expenses.

Very briefly summarized, the Interstate Commerce Commission's present system of accounts requires the railroads:

To show in considerable detail the charges made for additions and betterments to capital account (property account);

To show in great detail (on 261 separate accounts) the expenses of operating the property under six general heads. These general heads are Maintenance of Way and Structures, Maintenance of Equipment, Transportation Expenses, Traffic Expenses, Miscellaneous Expenses and General Expenses;

To show in considerable detail a classification of revenues;

To show the disposition of the revenue remaining after the payment of operating expenses under the heading of Taxes, Interest, Rentals, etc., Appropriations and Dividends;

To show in their general balance sheet the cost of their assets and the face value of their securities outstanding and their other liabilities;

To show in a profit and loss account the details of debits and credits to this ledger account.

As has been already mentioned, the commission's system of accounts does not show with any degree of accuracy the cost of performing any particular service. An attempt is now being made to allocate all classes of expenses as between freight service and passenger service. It is obvious that Maintenance of Way Expenses, which includes the cost of repairs to and renewals of the roadbeds and structures of the transportation plant, can only be divided as between freight and passenger service on some arbitrary basis. Opinions differ as to how accurately this arbitrary basis can be made to conform with the facts. There is no difference of opinion, however, as to the fact that no one basis for division or no general rule for a division of these expenses can be made which will conform to the facts even approximately under all conditions. The writer believes that if a careful study is made of the operating conditions on each division of a road, it is possible to so divide Maintenance of Way expenses as to reflect with a fair degree of accuracy the additional cost which is placed on maintenance as a whole when one or other of the services is increased. If a radical change takes place in the conditions, however, it will be necessary, even on a single division, to change the basis on which the allocation of expenses was made. If, for instance, the speed of passenger trains is the factor

which determines when worn rails, rotted ties or ballast are to be renewed, then it is essential that a speed ton mile shall be used as a factor in dividing Maintenance of Way expenses. If, on the other hand, the pounding which rails, ties and ballast get under heavy freight service is the factor which determines when renewals must take place, a ton mileage divisor for these expenses will be a fair one.

Maintenance of Equipment expenses and Transportation expenses can be divided fairly accurately between freight and passenger service so that from 80 to 90 per cent of all expenses can be so divided.

The accounts under Maintenance of Way and Structures are constructed so as to show the cost of each class of work. Roughly, an attempt is made to keep separate repairs and renewals, thus there is an account for rails which includes the cost, at point of delivery where rails are to be put into the track, of this renewal material. There is an account, Tracklaying and Surfacing, which includes the labor cost of doing this renewal work. There is another account, Roadway Maintenance, which includes the cost of keeping roadway up to standard. This is repairs. It is quite possible that the same gang of men may be at work one day at a job which would necessitate charging their wages to one account, and the next day to a job which would necessitate charging their wages to a different account. If cost accounting is the primary object of a system of railroad accounts, such difficulties as this of splitting up men's wages as between different accounts is a necessity.

The distinction between repairs and renewals is most easily made in Maintenance of Equipment expenses. Repairs of locomotives include the cost of keeping the unit up to its standard of work. It is true, of course, that this necessitates the renewal of parts, but there is theoretically a clear line easily distinguishable between renewal of parts and the abandonment of the unit and replacement by another unit. In practice, however, there are often difficulties met with even in making this distinction. Let us say that a consolidation locomotive is to be converted into a Mallet. The boiler, drivers and a considerable part of the consolidation locomotive are retained with slight alterations, and to this is added a second boiler and set of drivers. The question arises as to whether the old consolidation has been abandoned and its original cost therefore chargeable to retirements and a new locomotive con-

structed, the cost of which is a capital charge and not an expense, or whether the consolidation has simply been added to so that part of the cost of the change is an expense and part only a capital charge. In the case cited it would probably be correct to assign a certain scrap value to the old consolidation, charge off the original cost less this scrap value to retirements and charge the cost of the new Mallet to capital.

It will be seen that under Maintenance of Equipment expenses the same difficulties of dividing up men's wages as between different accounts will be found, as was encountered in the Maintenance of Way expenses. A blacksmith may be at work on parts for the repairs of a locomotive one day and parts for the repairs of a steel underframe car the next day.

There is a more serious difficulty, however, than this in the Interstate Commerce Commission's primary accounts, and one which could easily have been avoided. There is no clear distinction made between labor and materials. Whereas, some accounts include only labor costs and others only material costs, as in the case mentioned of rails (material) and tracklaying and surfacing (labor). There are many other accounts, both under Maintenance of Way and Maintenance of Equipment, which include both labor and materials. Thus repairs of locomotives include the cost of the material used in making the repairs and the labor cost of applying this material. The same is true under Maintenance of Way of the account Bridges, Trestles and Culverts.

The English system of accounts which was promulgated by an Act of Parliament in 1911, while by no means as scientific an attempt at cost accounting as the American system, does make a clear distinction between labor and materials. Thus the cost of Repairs of Locomotives is divided between two accounts, Repairs and Partial Renewals of Locomotives—labor, and Repairs and Partial Renewals of Locomotives—materials. This failure of the commission to make it easy to get at labor cost in its system of accounting is a blemish on its system of accounts. The commission is certainly aware that in every arbitration between employees and railroad managements which take place, there is a long and bitter wrangle as to what is the real trend of wage schedules and wage cost, and there seems little excuse for this failure to clearly distinguish between labor and material costs when the last revision of accounts was made in 1914.

The third general heading of expenses is Transportation. Under this heading the commission has included primary accounts to show the cost of actually doing business. If we think of maintenance as repairs and renewals, we can think of transportation as consumption. The labor and the materials, the cost of which is charged to transportation, are the labor and materials that are consumed in producing the transportation. The wages of trainmen, enginemen, station agents, switchmen and yardmen are all, of course, a part of the cost of producing transportation.

The commission has often received credit for making a distinction between the cost of soliciting traffic and the cost of producing transportation, and while it is true that most railroad companies, previous to 1907, did not make this distinction, it was not the commission but a railroad officer who made this analysis and separated traffic expenses (the cost of soliciting traffic) and transportation expenses (the cost of producing transportation). Under traffic expenses are included the salaries of commercial agents, traffic solicitors and the expenses of advertising, etc.

Overhead charges are of two kinds, those which can be allocated to one general group of expenses, as for instance the salaries of the Engineer of Maintenance of Way, which can be charged to Maintenance of Way and Structures, or the salary of the Superintendent of Motive Power, which can be charged to Maintenance of Equipment, and the salaries of general officers and their expenses, which cannot be allocated as between maintenance and transportation. Thus the general manager is responsible for both Maintenance of Equipment and the expenses of the movement of trains. The commission has provided a primary account, General Expenses, under each one of the five headings mentioned above, and has also a general heading, General Expenses, under which are included such expenses as the salaries of general officers, law expenses, accounting department expenses, etc.

It will be recalled that the fundamental test of the value of accounting from the owner's point of view is as to whether or not the system of accounts adopted shows clearly the distinction between expenses, including maintenance and additional investment in the property. The question arises, is there any other expense which is going on which is not covered by the payment for labor and materials being consumed, and repairs and renewals. If we define

renewals not as renewal in kind, but as renewal to perform the same function, then there is no other determinable item of expense going on. Thus, if a locomotive is kept in repair for fifteen years and finally is condemned to the scrap heap, not because it is worn out, but because it is obsolete, if the cost of a new locomotive to perform the same function in relation to all the work that is being done that was performed by the old locomotive when it was bought, is charged to renewals, and the same policy is pursued throughout in regard to both Maintenance of Way and Maintenance of Equipment, adequate maintenance is being charged for.

The Interstate Commerce Commission, however, did not go at the problem in this way. Their system of accounts provided that when the locomotive is scrapped, its original cost, less the salvage received, should be charged to an expense account under Maintenance of Equipment—Retirements, and the same amount be *credited* to property account. Thus, in time, if no new equipment were bought to replace equipment abandoned, the cost of all the company's equipment would have been charged out to its expenses and its property account correspondingly written down so that the balance sheet would correctly show the depletion of assets.

The commission, however, went one step further than this. They argued that each year in the life of the locomotive saw it one step nearer the stage at which it would be scrapped. Since their aim was to properly include in each year's expenses the total expense which accrued during that year, they established depreciation accounts, to which an estimated amount was to be charged each year, which would be sufficient to provide for the original cost of a unit of equipment when it came time to scrap that unit. In other words, instead of charging out through expenses the total cost of a locomotive in the year in which it actually was scrapped, they effected the same thing by making charges of parts of this cost each year through the life of the locomotive. If it were possible to guess with any degree of accuracy as to what would be the life of a unit of equipment, or units of permanent way and structures, such a distribution of business risk would be sound business and sound accounting. The difficulty is that it is quite impossible to make such guesses with anything like a fair chance of the guess proving correct, and the accounts, therefore, record as a fact some-

thing which is only a surmise. Originally the commission set up depreciation accounts only for equipment and did not prescribe any rate which the companies were required to apply. In the 1914 classification, depreciation accounts were provided for all classes of material under Maintenance of Way and Structures, as well as for each unit of equipment, and the companies are required to charge such a rate for equipment as will provide for completely charging out original cost before the probable time for abandonment, and they must, moreover, be ready to defend the rate of depreciation which they adopt. As yet they are not compelled to make any depreciation charges on way and structures, but presumably will be so required in the future.

The attitude of both the Interstate Commerce Commission and the courts in rate cases is such that it would appear far better for railroad managers in the long run if they were to accept in a liberal spirit the Interstate Commerce Commission's theories of depreciation and to make such charges as will, in their best judgment, be adequate. Some roads, if such a policy is adopted, will be very hard hit. But it would appear to an outsider, that in the long run it would be better for railroad security holders and railroad managers to get the crisis over with, even if it means more receiverships, and to get their accounts on a basis which will be recognized by regulators and the courts, and on which the railroads can base an argument for adequate rates.

The commission's system of accounts provides for a charge to capital (property) account for all additions and betterments, as well as extensions. For instance, if seventy-pound rail is replaced by ninety-pound rail, the cost of seven-ninths of the new rail to be charged to expenses (rails) under Maintenance of Way, and two-ninths is to be charged as a betterment to capital account. This logically follows the commission's theories in regard to depreciation. Under a theory, in which adequate maintenance included the cost of renewals, not in kind, but of a kind to perform the same function in the general business of transportation, as was performed by the material replaced when that material was first bought, the entire cost of the ninety-pound rail would be charged to expenses and there would be no need for depreciation accounts.

Both railroad men and railroad regulators are continually confusing value and cost. The commission's system of accounts

attempts to stick strictly to cost, and in its distinction between expenses and additions and betterments, it succeeds. If this system had been uniformly applied to railroad accounts since the first railroad was built in this country, the books of the railroad companies would show accurately the cost of the companies' assets. On the other hand, the books would not show the value of these assets, since cost is only one of the factors in value. In practice, however, even the Interstate Commerce Commissioners often confuse, in rate cases, cost and value, and many of the state commissions apparently make no distinction between these two words, nor do they use either of them correctly. What the Interstate Commerce Commission would like to have railroad accounts show is value of assets and cost of each class of service. What the accounts do show, however, is cost of assets and cost of total service.

On the whole the commission's system of accounts is more detailed than is needed by the security holder who wishes to read the history of the affairs of his company and not detailed enough insofar as they do not separate labor and material costs for the railroad management. The great and permanent service which the commission has rendered to railroad security holders, and the public that is attempting to regulate railroads, is to enforce a *uniform* system of accounts.